



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,439	12/28/2001	Eleanor P. Rabadam	42P12399	8983
8791	7590	06/25/2004	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD, SEVENTH FLOOR LOS ANGELES, CA 90025			LEE, EUGENE	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/039,439	RABADAM ET AL.	
	Examiner	Art Unit	
	Eugene Lee	2815	<i>AW</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/17/04 has been entered.

Specification

2. The amendment filed 5/17/04 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows (1) a charge pump circuit, the charge pump circuit to provide a programming voltage potential to the memory array, and (2) a charge pump circuit further comprising a voltage regulator.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 2815

4. Claims 1 thru 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not describe a charge pump circuit, the charge pump circuit to provide a programming voltage potential to the memory array (claims 1, 13, and 18), and a charge pump circuit further comprising a voltage regulator (claim 12).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 6, 12, 13, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey et al. 6,476,486 B1 in view of Mart et al. 5,563,838 in view of Yao 5,838,204.

Humphrey discloses (see, for example, Fig. 8) an integrated circuit mounting package comprising an integrated circuit die 20 and electronic device 37. The electronic device is connected to the integrated circuit die by a contact pad 21. In column 2, lines 34-43, Humphrey discloses the electronic device may be any passive or active device or another electronic device. Humphrey does not specifically state the integrated circuit die including a memory array. However, it was extremely well known in the art at the time of invention that integrated circuit dies include memory arrays. Mart teaches (see, for example, column 1, lines 28-39) that

Art Unit: 2815

integrated circuit chips come in a variety of forms, i.e. DRAM, SRAM, ROM, gate arrays, etc., which are all types of memory chips. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have a memory array in order to form a memory device, and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Humphrey in view of Mart does not disclose a charge pump circuit. However, Yao discloses (see, for example, FIG. 11) an IC chip 900 comprising a PLL circuit (charge pump). In column 9, lines 33-48, Yao discloses the PLL circuit as a charge pump. The charge pump reduces noise and is used for a clock signal. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have a charge pump circuit in order to reduce noise and generate a clock signal.

7. Claims 2 thru 4, 7 thru 10, and 14 thru 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey et al. '486 B1 in view of Mart et al. '838 in view of Yao '204 as applied to claims 1, 6, 12, 13, 18 and 19, and further in view of Spielberger 6,005,778.

Humphrey in view of Mart in view of Yao does not disclose the passive component being mounted to the integrated circuit die with an epoxy material. However, Spielberger states (see, for example, column 4, lines 40-42 and column 4, lines 12-17) that a chip is bonded by a conductive or nonconductive adhesive, and that epoxies are an example of adhesives. It would have been obvious to one of ordinary skill in the art at the time of invention to use an epoxy material in order to stabilize the passive component on the integrated circuit die.

Art Unit: 2815

Regarding claim 3, Humphrey in view of Mart in view in view of Yao in view of Spielberger discloses the claimed invention except for the epoxy material between the passive component and the integrated circuit die being less than about 0.050 millimeters in thickness. However, it was well known in the art at the time of invention to use this thickness in order to reliably attach one semiconductor component to another component in a semiconductor device. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to use an epoxy material being less than about 0.050 millimeters in thickness, in order to reliably attach the chip to another electronic device, and since it has been held that discovering an optimum value of a result effective value involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 8-10, Humphrey in view of Mart in view of Yao does not disclose wires to connect the integrated circuit or passive component to the substrate. However, Spielberger discloses (see, for example, left side of Figure 5) wires (first wire bond) 28a that connect the integrated circuit 40b to substrate 14b. For claims 9 and 10, Spielberger discloses (see, for example, right side of Figure 5) other wires (second wire bond) 28a that connect the passive component to the substrate. It would have been obvious to one of ordinary skill in the art at the time of invention to include these wires in order to make a reliable connection between the integrated circuit or passive component to the substrate.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey et al. '486 B1 in view of Mart et al. '838 in view of Yao '204 as applied to claims 1, 6, 12, 13, 18 and 19 above, and further in view of Manning et al. '5,962,887. Humphrey in view of Mart in view

Art Unit: 2815

of Yao does not disclose the passive component including a capacitor or an inductor. However, Manning discloses (see, for example, column 1, lines 29-31) that charge pump circuits having capacitors that convert an input power supply voltage to an output power supply of different voltage or polarity. In column 6, lines 31-35, Manning further discloses the capacitor in a charge pump circuit that lessens the power supply voltage. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have the passive component including a capacitor or an inductor in order to form a charge pump that can convert an input power supply voltage to an output power supply of different voltage or polarity, and/or lessen the power supply voltage.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey et al. '486 B1 in view of Mart et al. '838 in view of Yao '204 as applied to claims 1, 6, 12, 13, 18 and 19, and further in view of Javanifard et al. 6,385,033 B1. Humphrey in view of Mart in view of Yao does not disclose the integrated circuit die including a flash memory array. However, it was very well known in the art that flash memory arrays were one of many types of memory arrays utilized in memory chips. Javanifard discloses (see, for example, column 6, lines 9-15) a memory circuit device comprising a flash memory. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a flash memory in order to utilize a common memory array that capably reads, writes, and stores data in a semiconductor device.

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Humphrey et al. '486 B1 in view of Mart et al. '838 in view of Yao '204 as applied to claims 1, 6, 12, 13, 18 and

Art Unit: 2815

19, and further in view of Sundstrom 5,864,177. Humphrey in view of Mart in view of Yao does not disclose a wire bond to electrically couple at least one passive component and the integrated circuit. However, it was well known in the art at the time of invention to use wires to connect components of a semiconductor device. Sundstrom teaches (see, for example, FIG. 3) a semiconductor device comprising a passive device 12 and an underlying die 10. A bonding wire 28 couples the passive device to the die 10. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use a bonding wire in order to reliably couple the voltage regulator and chip together.

Response to Arguments

11. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

INFORMATION ON HOW TO CONTACT THE USPTO


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Lee whose telephone number is 571-272-1733. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571-272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2815

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eugene Lee
June 21, 2004


TOM THOMAS
SUPERVISOR, PATENT EXAMINER
TECHNOLOGY CENTER 2800